

REMARKS

Claims 1-5 and 7-13 are pending in the application. Claims 1, 8, 12, and 13 have been amended and claims 14-26 have been added, leaving claims 1-5 and 7-26 for consideration upon entry of the present Amendment. Support for the amendment can be found in Figures 7, 9A, 9B, and 10, and the corresponding description in the specification. Applicants respectfully request reconsideration in view of the Amendment and Remarks submitted herewith.

The Examiner has objected to the drawings under 37 CFR 1.83(a). The Examiner asserts that the drawings do not show a first electrode being absent from at least the drive circuit region. Figure 7 illustrates the common cathode 167, which clearly indicates that the common cathode 167 is not formed in the peripheral drive circuit region 251 (vertical drive circuit 101, horizontal drive circuit 120). Accordingly, Applicants respectfully request that this objection be withdrawn.

Claims 1-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamada et al. (US 6,072,450). For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d 1016, 1023 (Fed. Cir. 1996).

The Examiner asserts that Yamada teaches a substrate (101); an insulating layer (102); a common cathode (107) and a discrete anode (103); and first and second driving display thin film transistors (T1 and T2). The Examiner also asserts that while Yamada does not disclose a peripheral driving circuit and a common cathode absent from the driving circuit, one of ordinary skill in the art would have realized the desire to form a driving circuit surrounding a display region as shown by Yamada figure 7, as well as a common cathode not being formed over the driving circuit. The Examiner also asserts that it is would have been obvious to one of ordinary skill in the art at the time of the invention to form a peripheral driving circuit because it is a common practice in the art for driving all display TFT as well as not forming a cathode over the

driving circuit in order to reduce the processing step since there is no display region at the driving circuit region. common practice in the art. Applicant respectfully traverses.

Claims 1-5 and 7-13 include the following limitation: "a drive circuit region having a peripheral drive circuit that is integrated on said substrate" and a limitation that the cathode is disposed in the display pixel region and is absent from the drive circuit region. Yamada does not teach or suggest the either of those limitations.

Yamada does not teach or suggest integrating the drive circuits on the same substrate as the pixel section and having a common cathode absent from the drive circuit region. First, it is not obvious to integrate the drive circuits on the same substrate as the pixel section. In addition, such a teaching cannot be inferred from the panel circuit diagram of Figure 7 (or any of the other drawings) of Yamada or the corresponding descriptions in the specification. Moreover, Yamada nowhere illustrates or describes having a cathode absent from the driving circuit region. The Examiner states that it would be obvious to not form a cathode over the driving circuit in order to reduce the processing step since there is no display region at a driving circuit region; however, when both the driving circuit region and the display pixel region are formed on the same substrate, a metal mask is used to cover the drive circuit region so that the cathode is absent from the drive circuit region. See page 16 lines 5-13. Thus, it is not obvious to form the cathode over the display pixel and have it absent from the driving circuit. Applicant respectfully requests that the Examiner support his rejection by citing to a reference that teaches the limitations as claimed by Applicant.

In addition, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); MPEP § 2143.01. In this case, there is no motivation in Yamada to have the cathode absent from the drive circuit region. Because Yamada does not teach or suggest integrating the peripheral drive circuit on the same substrate as the pixel section, there is no motivation in Yamada to have the cathode absent from the drive circuit region.

Applicants further maintain that the Examiner has used an improper standard in arriving at the rejection of the above claims. In applying Section 103, the U.S. Court of Appeals for the

Federal Circuit has consistently held that one must consider both the invention and the prior art "as a whole," not from improper hindsight gained from consideration of the claimed invention. See *Interconnect Planning Corp. v. Feil*, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985) and cases cited therein. According to the *Interconnect* court

"[n]ot only must the claimed invention as a whole be evaluated, but so also must the references as a whole, so that their teachings are applied in the context of their significance to a technician at the time - a technician without our knowledge of the solution." *Id.*

In this case, the Examiner states that two limitations are missing from the Yamada reference and does not point to any reference that provides the teaching. Moreover, the Examiner does not point to any support for the assertion that it would be obvious to make the claimed invention. Applicants submit that it is their disclosure that provides the necessary teaching. It is improper for the Examiner to use Applicants' specification as a road map to reject the claims. Thus, claims 1-5 and 7-13 are patentable over Yamada. Accordingly, Applicants respectfully request that this rejection be withdrawn.

Newly added claims 14-17 are also allowable. First, each of those claims include the limitations described above and thus, for the reasons already explained above, claims 14-17 are allowable.

In addition, claims 14-17 are allowable for additional reasons. Each of the claims include the following limitation: "said cathode includes an end portion that extends to an area between said display pixel region and said drive circuit region." Yamada does not teach or suggest that limitation. As explained above, Yamada does not teach or suggest that the cathode is absent from the driving circuit region. Moreover, Yamada does not teach or suggest having an end portion of the cathode extend to an area between the display pixel region and the drive circuit region. Accordingly, claims 14-17 are allowable for this additional reason.

Claims 18-25 are also allowable claims. Claims 18-25 include the following limitations: "a drive circuit region having vertical and horizontal drive circuits that are located in a peripheral drive circuit region formed surrounding said display pixel region and are integrated on said substrate," the cathode is absent from the drive circuit region, and the cathode comprises an opaque metal material and constitutes an uppermost layer of said electroluminescence element. Yamada does not teach or suggest those limitations. As explained above, Yamada does not teach

or suggest that the drive circuit region is integrated on the same substrate as the display pixel and that the cathode is absent from the drive circuit region. Thus, for all of the reasons explained above, claims 18-25 are allowable claims.

In addition, claims 18-25 also include the limitation that the cathode comprises an opaque metal material and constitutes an uppermost layer of the electroluminescence element. As such, the display device is of a bottom-emission type, which irradiates light to the outside from the substrate side. By configuring the device such that the opaque common cathode used commonly in the display pixel region is absent from the driver region, the thin film transistors constituting the drive circuit formed in a layer below the first electrode, namely, in a layer located on the viewing side of the first electrode, can be prevented from being irradiated by light from outside and light from the emissive layer reflected by the first electrode. As such, this structure avoids problems such as generation of light leak current in the thin film transistors of the drive circuit. In contrast, Yamada describes composing the common electrode with a transparent anode electrode. Accordingly, it is not necessary in Yamada to consider the problem of such light reflection and its undesirable influence on the thin film transistors in the lower layers. Applicants respectfully request that the Examiner allow claims 18-25.

Furthermore, claims 19, 21, 23, and 25 are allowable claims for additional reasons. As explained above, Yamada does not teach or suggest that the cathode is absent from the driving circuit region. Moreover, Yamada does not teach or suggest having an end portion of the cathode extend to an area between the display pixel region and the drive circuit region. Accordingly, Applicants respectfully request that the Examiner allow claims 19, 21, 23, and 25.

Claim 26 is also an allowable claim. As explained above, Yamada does not teach or suggest that the cathode is absent from the driving circuit region. Moreover, Yamada does not teach or suggest having an end portion of the cathode extend to an area between the display pixel region and the drive circuit region. Accordingly, Applicants respectfully request that the Examiner allow claims 26.

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

In the event the Commissioner of Patents and Trademarks deems additional fees to be due in connection with this application, Applicants' attorney hereby authorizes that such fee be charged to Deposit Account No. 06-1130.

Respectfully submitted,

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